UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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HUGHES NETWORK SYSTEMS, LLC and
HUGHES COMMUNICATIONS, INC.,
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,
Patent Owner.
_____

Case IPR2015-00059
Patent 7,916,781

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**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.107**

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I.   INTRODUCTION

The Board should not institute *inter partes* review (IPR) on claims 1, 2, 3, 4, 5, 6, 7, 13, 14, 15, 16, and 19 of U.S. Patent No. 7,916,781 ("the '781 patent") because petitioner, Hughes Network Systems, LLC and Hughes Communications, Inc. ("Petitioner" or "Hughes"), has filed a fatally flawed petition and has not met its burden of showing it has a reasonable likelihood of prevailing on any of its proposed grounds of unpatentability.

The '781 patent represents a seminal improvement to coding systems and methods used for digital satellite transmission. It discloses an ensemble of codes called irregular repeat-accumulate (IRA) codes, which are specific types of error-correcting codes. These IRA codes enable a transmission rate close to the theoretical limit, while also providing the advantage of a low encoding complexity. *See, e.g.*, Ex. 2001 p. 1711 (noting inventors' unique contribution).

Moreover, the current industry standard for digital satellite transmissions uses channel codes that are the claimed IRA codes. This digital satellite transmission standard is titled "Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications" (the "DVB-S2 standard"). Experts in the industry widely credit the involved inventors for the IRA codes that the DVB-S2 standard uses. *See*, *e.g.*, Ex. 2002 p. 0001, n.8; *see also* Ex. 2003 p. 0001, n.8.

The '781 patent is directed to serial concatenation of interleaved convolutional codes forming turbo-like codes. For example, claim 1 of the '781

patent recites the following:

> A method of encoding a signal, comprising:
>
> receiving a block of data in the signal to be encoded, the block of data including information bits;
>
> performing a first encoding operation on at least some of the information bits, the first encoding operation being a linear transform operation that generates L transformed bits; and
>
> performing a second encoding operation using the L transformed bits as an input, the second encoding operation including an accumulation operation in which the L transformed bits generated by the first encoding operation are accumulated, said second encoding operation producing at least a portion of a codeword, wherein L is two or more.

As discussed further below, the petition can be dismissed for a number of reasons. For example, the petition fails to properly identify all real parties-in-interest, a fatal deficiency that cannot be cured, given that the earliest filing date that could be accorded to the corrected petition would not fall within the one-year period specified in 35 U.S.C. § 315(b).[1] While the Board can deny institution based on this reason alone and without considering the merits, also fatal to proposed Ground 1 is Petitioner's failure to establish that the reference relied upon, Divsalar, even qualifies as a prior art printed publication. The petition suffers from

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[1] Petitioner has filed six petitions for *inter partes* review: IPR2015-00059, IPR2015-00060, IPR2015-00061, IPR2015-00067, IPR2015-00068, and IPR2015-00081. All six petitions similarly fail to properly name all real parties-in-interest.

other deficiencies as well. Significantly, the proposed grounds of challenge fail to demonstrate that each feature of claims 1, 2, 3, 4, 5, 6, 7, 13, 14, 15, 16, and 19 of the '781 patent is found in the prior art. Accordingly, institution of *inter partes* review should be *denied*.

II.   FAILURE TO NAME REAL PARTIES-IN-INTEREST

As a threshold matter, the petition should be dismissed because Hughes failed to identify all real parties-in-interest as required by 35 U.S.C. § 312(a)(2) and 37 C.F.R. § 42.8(b)(1). The petition identifies only Hughes Network Systems, LLC and Hughes Communications, Inc. as real parties-in-interest.[2] It at least fails to identify EchoStar Corporation ("EchoStar"), even though Hughes is the wholly owned subsidiary of EchoStar, and DISH Network Corporation, DISH Network L.L.C. and dishNET Satellite Broadband L.L.C. (collectively, "DISH"), even though EchoStar and DISH are under common control.[3] The existence of

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[2] While the petition notes that "EchoStar Corporation is the parent of Hughes Satellite Systems Corporation, which is the parent of Hughes Communications, Inc.," it does *not* identify EchoStar as a real party-in-interest. Pet. p. 1.

[3] The decision to mention EchoStar but not identify it a real party-in-interest was not a mere oversight, but a strategic decision. Caltech asserted the '781 patent against Hughes in federal district court and named DISH Network Corporation, DISH Network L.L.C., and dishNET Satellite Broadband L.L.C. as co-defendants. Ex. 1021 p. 2. On September 30, 2014, Caltech filed a motion for leave to amend

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